The Circular.

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TERMS.

FREE TO ALL. THOSE WHO WISH TO PAY MAY SEND TWO DOLLARS A YEAR.

THEODORE L. PITT, EDITOR.

STRAWBERRY CULTURE.

II.

IN last week's paper it was mentioned that in our general practice, in field culture, we had given the preference to spring planting. This practice we shall be likely to continue, if for no other reason, because the spring-time seems to be the most convenient for us to do the work of planting several acres. But, in a smaller business especially, there are advantages worth looking at in the system of summer planting. If it is considered that ground planted in the early spring needs immediate attention as soon as there is warmth enough in the earth to germinate the millions of weed-seeds it contains, and that in consequence the cultivator will have occasion before mid-summer to go over his ground several times with horse and hoe; then it is easy to see that if plants set three or four months later can be relied on for a crop as certainly as those set in the months of April and May, there is a clear gain to the cultivator of much time, and also a gain of several months for the land, in which it may first be used for other early crops. As in our previous article it was intimated we might refer to a method of *summer* planting that would secure the above mentioned results, we will proceed now to give our recipe for the same, as we have practiced it. It may be called the system of

TRANSPLANTING BY POTS.

Take half-pint or three-inch earthen pots, (such as can be bought by the quantity at the potteries for a cent apiece), and after covering the drain-holes in the bottom with bits of flat stone, chips, or broken crockery, fill the pots with rich earth—not neglecting to *pack it well* in the process of filling. (This work can be done under cover on a rainy day, or at any time which best suits one's convenience.) Immediately after harvest time, or as soon as the first runners make their appearance, bury a pot level with the surface of the ground wherever a healthy runner invites; fasten the *joint* of the runner within the rim of the pot by a forked twig, or by laying on it a stone or lump of earth; and that the buried pots may the more easily be found again, it will be well to insert upright sticks in the ground beside them. Within three weeks (sometimes within two) the pots will contain thrifty plants that are strong enough to be separated from the parent vine; and they can be taken up and carried to the ground prepared for them. If there has been faithfulness in following our instructions about packing the earth, the roots of the plants will now be so interwoven with it, that by pushing gently with a pointed stick against the covering over the drain-hole, the whole contents of the pots can be removed without loosening any of the earth from the roots, and thus transplanted; after which they will grow and thrive without special attention, and without suffering any perceptible drawback from the operation of transplanting.

Plants set out after this manner on the 1st of August, have yielded almost if not quite as good a crop of handsome berries the following June, as were obtained from ground planted three months earlier in the ordinary way. And further, by immediately re-filling and using the pots over again to catch a new set of runners, another bed of plants may be set before the 1st of September, which will do nearly as well as the first.

For the benefit of such as have no pots, or cannot afford them, we will now mention a simple substitute for them, which can be recommended for its cheapness, and may possibly prove to many even more convenient than the pots. At least so thinks one of our associates who last year tried on a somewhat liberal scale, and with good success, the method we are about to describe. Let it be named the

TURF SYSTEM OF TRANSPLANTING.

Select from the road-side a level plot of grass that is free from stones, and with a spade cut the turf into squares as large as can be conveniently turned over without breaking. Slip your spade under them to the depth of two and a half or three inches, and turn them over, each square nicely on its own bed.—Next saturate the inverted turf with good liquid manure; and when it has partially dried, cut the whole plot into pieces three inches square. Your substitutes for pots are now ready for use; and as fast as they are wanted, can be removed with wheelbarrow or wagon, without danger of breaking in pieces. It is only necessary to add that our plan of marking with an upright stick, the spot where each turf is placed to catch the runner, is of more importance now than when the pots are used—as the inverted turf cannot be so readily distinguished from its mother earth.

The only additional thing we have in mind at the present, to write about the Strawberry, is to express the hope that its cultivation may be extended until it can be afforded in cheap abundance, for all who like the pleasant fruit. It is universally recognized as innocent food; and besides being grateful to the palate, is decidedly healthful for all—the freest use of it operating only as a mild aperient to the system, at a time of year, of all others, when such medication is desirable. And why should not every family that has a garden plot, raise its own strawberries, and all it wants of them? This can be done more easily than many imagine. Take the two varieties, Wilson's Albany and Triomphe de Gand (until there are proved to be better kinds); set a single square rod with healthy plants any time during the present month; and besides the positive enjoyment involved in taking care of them, expect to be rewarded by another year, with a yield of not less than a bushel and a half or two bushels of fruit.

L.

"DAY AND NIGHT."

THROUGH lack of thorough oversight and verification of the calculations in proof-reading, the article on "Day and Night" in our fifth number, contained several mathematical errors, which we deem worthy of further notice and correction.

"Day in the sense of our experience," says the article, "is a globe of light, the radius of which is the mean distance of the earth from the center of the sun—about 95,000,000 miles."

The diameter of this globe is 190,000,000 miles (not 180,000,000, as was stated), and its circumference is the earth's orbit—over 596,000,000 miles (not 565,000,000).

The superficial area of this globe is over one hundred and thirteen thousand millions of millions (113,000,000,000,000,000) of square miles. Or in the usual terms of French notation, one hundred and thirteen quadrillions of square miles.

The solid or cubic contents of this globe are over three septillions five hundred sextillions (3,500,000,000,000,000,000,000,000) of cubic miles. Or, in other words, three thousand and five hundred millions of quadrillions of cubic miles.

Dividing this last sum (3,500,000,000,000,000,000,000,000) by 14,000,000,000,000 (the number of cubic miles in the cone of darkness called *Night*), and we have a quotient of 250,000,000,000.

Hence, the globe of light called *Day*, is *two hundred and fifty billion* times (instead of two hundred *million* times, as was stated in

the article referred to) larger than the shadow called *Night*. The following is a corrected tabular view of the matter in round numbers:

GLOBE OF LIGHT WITHIN THE EARTH'S ORBIT.

Miles in diameter	190,000,000.
Circumference	596,000,000.
Square miles of surface	113,000,000,000,000,000.
Cubic miles of contents	3,500,000,000,000,000,000,000,000.

CONE OF DARKNESS BEHIND THE EARTH.

Miles in circumference at base	8,000.
Circumference at base	25,000.
Square miles of surface	10,000,000,000.
Cubic miles of contents	14,000,000,000,000.
DAY is larger than NIGHT	250,000,000,000 times.

ANDREW CROSSE, ELECTRICIAN.

IT is pleasant to come in contact with one of the world's workers—one of the honest, heroic, humble workers for God and the truth. To know such men personally is a rich endowment. To know the results of their labors, though their faces we have never seen, is inspiring. We believe that some of the truest workers in the cause of truth, to-day, men whose labors will tell for most good on the future of humanity, are to be found in the ranks of the men of science.

Such a man, apparently, was Andrew Crosse, the Electrician.

A sketch of this man in the *British Quarterly*, a few years ago, is as interesting as a romance.

Few more diligent and successful students of the arcana of nature have lived in this century. He was born in 1784, and died in 1855. He is called the Electrician, from his devotion to the study of that branch of science, in which he attained some wonderful results. His attention was accidentally turned to it while a school-boy. He became fascinated with it, and at once decided on his future pursuits.—From this time it was the absorbing study of his life, so that it is said of him that while he did not neglect his duties as justice of the peace, landed proprietor, or head of a family, "his chief business in this world, secularly speaking, was to cultivate electricity, and to draw out new uses for its wonderful powers. And if ever mortal succeeded in taming this fiery spirit, and compelling it to drudge like some fettered, but sleepless familiar—if ever on the other hand, philosopher knew how to exhibit its might, forcing it to display its strength in angry but measured leaps of flame, which burnt or dissipated all that opposed, Andrew Crosse was assuredly the man."

His name is not much known except among the followers of science, but he appears to have been a genuine man, modest, full of enthusiasm for truth, and of honest reverence and love toward God. He avoided notoriety, and pursued his studies without reference to public opinion. Living on his own estate at Broomfield, near Taunton, England, he kept the modest tenor of his way for many years, and the world was not aware of his worth or his achievements. He went to his laboratory, or manipulated his implements in "the humble hope of benefiting his company, improving his own understanding, and finding unspeakable consolation in the study of the boundless works of his Maker." Simple and unpretending in his ways, he was full of child-like enthusiasm. A sunny and serene temperament seems to have been characteristic of him. "Often," said he, "have I, when in perfect solitude, sprung up in a burst of school-boy delight at the instant of a successful termination of a tremblingly anticipated result. Not all the applause of the world could repay the real lover of science for the loss of such a moment as this."

He had an extensive apparatus, and his experiments were of a wonderful and varied character—now exploring the secrets of a thunder-cloud, or a November mist, now producing mineral crystals of exquisite beauty. "From his voltaic forge came specimens of quartz capable of scratching glass, arragonite, chalcedony, carbonates of strontia, barytes, lead, and copper; sulphurets of lead, iron, copper, silver, and antimony; with many other compounds equally interesting in their character. 'I have produced,' said he, 'about two hundred varieties of minerals, exactly resembling in all respects similar ones found in nature, as well as some others never before discovered in nature or formed by art. A specimen I have made of a sulphate of copper is an instance of this.'" His experiments were so successful and so remarkable in this line of discovery, that he ventured to express a belief that the day would come when diamonds would be fashioned by the voltaic art, and when, in fact every species of mineral would be brought within the reach of human skill. And yet with all his large expectations, he was so simple in his experiments, that, to use the language of Dr. Buckland, he made some of his "great dicoveries in crystallization by the use of a brick with a hole in it immersed in a pail of water."

He appears to have had little or no ambition for personal celebrity, and entertained a very modest opinion of his own services. He regarded his experiments as "feathers" thrown up to show which way the wind of science blew. The notice in the *British Quarterly* says of him: "A scientific hermit he would probably have remained to the last, had he not been pushed into fame by his admiring friends. It was not until the meeting of the British Association at Bristol, in the year 1836, that the electrician was induced to lay the results of about thirty years of sequestered toil before the public. His statements produced a species of delirium in the audience. The simplicity of his manners, and the apparent unconsciousness that he had any thing extraordinary to communicate, gave singular point to the striking disclosures he made. Many a *savant* looked on in amazement whilst he explained how he had formed mineral after mineral by the aid of his little noiseless rivulets of voltaic power.—But when this new-found interpreter of nature intimated his conviction that one day men would probably be able to construct every sort of crystallized substance, and amongst these the glittering diamond itself, the excitement, as described by an observer, 'became so great, and the applause so general, as to leave an impression on the minds of the dense mass that filled the lecture-room, scarcely to be equaled by any circumstance in their existence.'

"From this sudden celebrity, the electrician endeavored to extricate himself as speedily as possible. He slipped away from the scene of his involuntary triumph more like a culprit than a conqueror. The brilliant honors he had won did not affect him in the least, but he hastened home to his batteries, and continued to enlarge the borders of his favorite science with as much zeal as if he were the lowliest laborer in that interesting domain. His faith in the power of electricity was great. He believed that it was destined to work wonders, and that the time would come when it would produce greater and more permanent alterations in society than any which might arise from political convulsions. He expressed his belief that it would be universally employed 'in a vast variety of manufactures over the whole civilized world.' That he was no visionary in his opinions may be inferred from the fact that upwards of forty years ago, when dining with some country gentlemen at Alfoxton Park, in Somersetshire, the conversation happened to turn upon the discoveries of the day; Crosse, then a shy young man, uttered the following prediction: 'I prophesy that by means of the electric agency we shall be enabled to communicate our thoughts instantaneously with the uttermost ends of the earth.' Now we who are in the habit of seeing those marvelous wires which are constantly streaming with intelligence, and conveying it hundreds of miles without the slightest perceptible expenditure of time, may think little of such a prognostication; but forty years ago the idea was just as hardy and incredible as it would be now to talk of establishing a line of balloon packets to ply regularly between the Monument and the Moon. And yet in forty years more the earth may be belted round with cables and wires, differences of time may be abolished, and diversities of speech all sunk in, or at any rate subordinated to, one universal language—that spoken by the quivering needles of the telegraph."

CHRISTIANITY IN ITS SECOND POWER.

CHRISTIANITY, as a reforming power, takes effect first on the individual, then on society. The change which it proposes in individuals, is so radical that it is described as a "new birth," the making of a "new creature;" and a glance at its scheme shows that these descriptive terms, are by no means too strong. Leaving subordinate details, the main points of the great Christian change, as set forth in the New Testament, are comprised in a deliverance

1. From Property Selfishness,
2. From ties of selfish Relationships,
3. From bondage to external Legality,
4. From the power of Death.

Such is Christianity in the individual.

What is it in society? We may be sure that a power which makes of individuals "new

creatures," will in its extension to society produce an equal and corresponding change in that.

Tracing the four principles stated above, beyond the individual to their operation in the Social Sphere, we arrive at the following results:

1. The principle which saves the individual from property selfishness, in its extension to society becomes—

COMMUNISM.

2. The principle which establishes individual righteousness without the necessity of law, in society introduces—

THE SPIRITUAL REIGN OR KINGDOM OF GOD.

3. The principle which gives believers ascendency over death, founds in society—

RESURRECTION INSTITUTIONS.

4. The principle which leads us out of worldly ties and relationships, insures in the new society of Christian love—

A HUNDREDFOLD OF ALL THAT IS GIVEN UP.

THE TWO ENGINES.

THE two leading manufactures to which iron is applied at the present time are representatives, respectively, of peace and war—the locomotive and the cannon. These two works of art, moreover, represent the two great classes of artificial productions to which iron is applied. The locomotive represents all conservative and beneficent machinery—the steam-engine in all its forms, and the thousand-fold machinery which it operates, assisting man in his conquest of matter. The cannon represents all appliances of destruction—its own destructive missiles, the sword, the musket, the screaming shell, and the armored ships. The cannon is financially an unmitigated, though sometimes necessary expense. The locomotive is the source of great profit to the country. The business of the cannon is to part friends, to remove them to the distance of whole worlds asunder. The locomotive witnesses more happy meetings and greetings, than it does of bitter partings. The partings at the railroad station are usually seasoned and softened by the inspiration of high hopes and stirring enterprise; but the abrupt departures on the field of battle, alas! what a plunge into the unknown future are they with many.

But it is pleasant to think that the struggle for precedence between the two engines is to terminate in favor of the representative of peace. It would seem as though that beautiful old Bible illustration of the coming of the reign of peace, "They shall beat their swords into plowshares, and their spears into pruning-hooks," might properly be varied to suit these times so as to read: "They shall turn their cannon into steam-cylinders, and their ship-armor into boiler-plates." What a rich nation this will be in such materials when men shall learn war no more; when the grim-visaged and bloody-handed old monster shall make his last plunge into outer darkness! What an enormous pile of brass, iron and steel will there be when all the nations stack their arms and surrender to the God of peace! Think of all this material which is now devoted to the art of destruction, together with the wealth and human energy and skill, that marshal and direct and serve it, turned, under the reign of peace, to all good and productive uses. The language of the old prophets, "The desert shall rejoice and blossom as the rose;" "Sing together ye waste places of Jerusalem;" might find its literal fulfillment. The deserts and waste places of the earth might be made to welcome with a glorious harvest of flowers and fruits, the advent of the age of eternal peace. J.

EXPERIMENTS IN FISH-BREEDING.

II.

A few rods from our dwelling, are three small ponds, made partly for the purpose of ornamenting an unattractive piece of ground, and partly for growing fish. The first, or upper pond, is about one rod square and two feet deep, made by excavating the earth over and around a spring. The second is twice the size of this, and four feet deep. The third is three times the size of the second, and five feet deep. These ponds are ten feet apart, the water passing from one to the other through a flume or conduit, so arranged that the fish can be drawn from the first to the second, and from that to the third by gates at the bottom of the flumes. Early in the fall of 1862, I caught from the neighboring streams twenty-five or thirty trout, and placed them in a spring near by. These were examined occasionally, and on the 25th of October I obtained the first spawn, and within the next ten days I had about three thousand eggs.

The method I adopted in procuring the spawn was to separate the males from the females as I took them out of the spring, putting the males into one pail and the females into another. Then I took a female trout in my left hand and with my right hand made a gentle pressure on her abdomen, passing it downward at the same time. If the eggs are mature they will flow from the fish with a slight pressure, and are received in a pan or shallow vessel partly filled with water. A male fish is then taken and treated in the same way. A few drops of the milt, or spermatic fluid, should fall over the eggs and be allowed to settle on them, the water being stirred slightly at the same time. The spawn or eggs thus prepared were placed as follows: about eight hundred were put in a box of clean sand and gravel, and placed in the spring pond, No. one; the same number were placed in another box in like manner, and put in the pond No. two; and a like quantity were put into the trough that conducts the water from the first to the second pond. The remainder, some five or six hundred, were placed in a spring, prepared by covering the bottom with clean sand.

On examining the eggs two or three weeks afterward, those in the ponds were found covered with a fine sediment, and many had turned white, a sure indication that they had lost their vitality. The boxes were raised to the surface, and the sediment washed off by pouring water over them several times during the winter; but it was of little use, for every one in the lower pond failed, and not more than one-fifth in the spring pond hatched.

Those placed in the trough between the ponds, seemed to be doing finely, until one cold night about the first of January, the water found a passage under the trough, and left the eggs exposed to the frost, so that was the end of them.

Those placed in the spring commenced hatching the last of January, and as near as I could judge, three-fourths of the spawn hatched, making about five hundred young trout in all. These were put in the spring pond. About the first of May I began to feed them small quantities of hashed liver, and fed them as often as every other day during the summer and fall. They consumed one and a half pounds a week the first part of the summer, and about two and a half pounds per week in the fall. On the first of November, when they were removed to the middle pond, they varied considerably in size, but would average five inches in length. I measured one that was seven inches long and would weigh a quarter of a pound or more, though but eight months old. Altogether they were much larger than those of the same age grown in the brooks.

In the fall of 1863, I made further experiments in trout-breeding. I had learned from the previous year's experience, that trout would not hatch in still-water. In order to give them the benefit of running water, a flume or race-way was placed between the first and second pond, the bottom covered with sand, and a surface of small pebbles strewed on that. The race-way was fifteen feet long and six inches wide. The water stood three inches above the pebbles, and was of sufficient volume to make a gentle current, but without moving the spawn, which were spread among the pebbles. The first of December they were covered with boards and straw, to protect them from extreme cold. At this time the eggs appeared quite promising, and success seemed certain. Here, my personal observation ended, but I have since learned that the spawn began to die soon after: the mortality increasing as the hatching season approached, so that not more than two or three hundred of the five thousand eggs I had, hatched.

This failure was so unexpected that I wrote to S. H. Ainsworth Esq., of West Bloomfield, N. Y. (who is well known as a successful breeder of the speckled trout), asking his opinion as to the cause. In his answer, he says it was the exclusion of the sun and light. "The light," he says, "gives vitality to the blood; and when kept from it the eggs are light-colored, bloodless, and very tender. The outer skin often bursts, and they die like vegetation kept in total darkness. They have no color, nor life, and cannot mature." This was without doubt the cause, and it serves as a good hint, that in such operations it will not do to deviate far from nature.

The number of spawn the trout produces, varies according to its size and age. At twenty months old (which is as early as they ever spawn), it produces from two to four hundred. I have obtained eight hundred from a trout weighing half a pound.

The spawn are so easily destroyed by sediment, that but few streams, comparatively, will hatch them. A stream with a clay, muddy, or loamy bottom will not answer at all. The most favorable are those that have a clean, sandy bottom, and that run through an uncultivated region, and are not subject to heavy freshets. A stream by whose margin the plow and cultivator are used, is muddy in time of freshets; and the impurity thus produced will destroy the spawn on the clearest sand. Heavy freshets,

moreover, kill them by disturbance of the bed of the stream and washing sand over them. In addition to these causes of destruction, the trout devour their own eggs in great numbers.

While watching the operation of a pair of trouts on their spawning bed last fall, I was surprised to notice how eager and determined three small ones seemed to be to get to the place. One would try one side, and while the old ones were driving him off, another would dart in from the opposite side. By close examination I discovered some spawn in the bed, which they were trying to get. In feeding my trout last summer, I found that they would eat shad spawn sooner than anything else. From these observations, I conclude that only the eggs that get between the pebbles escape destruction.

In the spring the young ones have to run the gauntlet, as the old ones in ascending the streams devour them by hundreds. Only a few days since, I went to a brook and caught a few last year's trout to stock a small pond, and seeing some of this spring's growth in the brook, I caught eight of them and put in the same pail; but the large ones had swallowed them all before I got home.

Taking these facts into consideration, the advantages of artificial propagation as a means of protecting the eggs and young fish, are readily seen. The results of these experiments thus far, I am aware, have not been very brilliant; but as they were made with but very limited knowledge of the art, they have been on the whole satisfactory, and I am more sanguine of ultimate success than ever. If my mistakes shall lead others to avoid similar ones, I shall be amply repaid.

In conclusion I would suggest to every farmer who has a spring leading into a brook or river, to try the experiment. Initiate your boys into the science, and they will soon find home scenes and the rural arts more attractive than the store and tavern. A circular pond, thirty feet in diameter and three feet deep, will hold, it is said, two hundred thousand trout the first season. They are then large enough to take care of themselves in the streams; and when raised for stocking the streams and rivers, but one pond is necessary. The breeding box should be between the spring and pond if possible, and well protected from surface water. In the fall, they should be let out into the brook before the spawn begins to hatch. In this way new colonies might be raised every year, in the same pond, and our waters soon filled to their utmost capacity with this delicate fish. Who will show public spirit by setting the example? B. B.

P. S. By a misprint in the former article on Fish Breeding, p. 39, it is stated that artificial propagation was first introduced in 1448. The year should be corrected to 1848.

"ABIDE IN ME."

What is it to abide in Christ? "A branch cannot bear fruit of itself, except it abide in the vine; no more," says Christ, "can ye, except ye abide in me." A branch grafted on to a vine becomes a part of the vine. The life or sap of the vine pervades the branch, and so becomes identical with it. And the branch would say (to personify it), I live, yet not I, but the vine liveth in me, and the life that I now live in the vine, I live by the *faithfulness* of the vine. So that it is no more *I* that live, but the vine. The egotism of the branch is entirely crucified. Its *I life* is lost, swallowed up by the life of the vine. This illustration put forth by Christ, signifying the vital relation his followers must sustain to him if they would be saved, is one that cannot fail to interest lovers of scientific truth. There is no ambiguity or doubtful meaning in the comparison. The enlightened practical believer in Christ, must see that by virtue of his identity with Christ he is saved from sin and selfishness, as truly as Christ himself. The spirit of Christ lives in him, and he naturally, by the working of spiritual laws, disseminates a good spirit, and possesses a spirit of improvement and growth of all noble attributes of character. Goodness is inherent to his life, so that faith in God and all good things, will flow out from contact with such a being.

But before one can be grafted on to the life of Christ, or become communized, one must be cut off from his old, natural life. Hence the pertinence of that saying of Christ, "Except a man hate father, mother, wife and children, yea and his own life also, he cannot be my disciple" —or, in other words, cannot be grafted on to me. This cutting-off process is painful to self—mortifying to the lusts of the flesh, and to the pride of life. But salvation is impossible without it. G. C.

THINGS AT ONEIDA.

Oneida Community, Apr. 25, 1864.

SHOTS ON THE WING.

Two resolutions (among other topics) have lately been introduced into debate here, one aimed at bullies, and the other at bores. You shall have them.

Resolved, That it is high time that Christians, men who profess to believe in Jesus Christ and to be his freemen, should no longer suffer themselves or their families to be bullied into sin, disease and death.

Resolved, That truth is lovely; and that therefore it is a worthy purpose for every one who loves righteousness and God's cause in the world, to present its claims in an attractive manner, and not become "bores" in its service.

The addresses called out by these resolutions were mainly affirmative and spirited; and after suitable expression the resolutions were adopted as the sense of the Community. Somewhat radical, undoubtedly; but what then?

"Where the share is deepest driven,
The best fruits grow."

GRAND-PARENTS.

Another idea which the Community broach and maintain, is, that grand-parents should wisely abstain, unless in circumstances of necessity, from taking charge of their own grand-children, and indeed from having much to do with them. Philoprogentiveness is so strong a passion, particularly in women, that one who has had a family of her own needs rather to devote her after life to recovering herself from the disorders which it has brought upon her, than to continue the cultivation of it by taking possession of the second generation. The second growth of this passion must be in some respects much more perverting than the first. The position most becoming to aged parents, is that which Paul assigns to widows, when he says: "She that is a widow indeed and desolate, *trusteth in God and continueth in supplications and prayers night and day*." 1 Tim. 5:5. In this position a woman who has filled the place of a mother and blessed her children with her own care, may bless her grand-children and the whole church by bringing upon them the care of God. In saving her own soul from the disorders of philoprogentiveness, she becomes a medium of heavenly spirits to her descendants and to all around her. Such at least is the teaching of experience in Communism.

On the other hand, the breadth of true parental feeling going outside of direct kindred, is occasionally illustrated among us in a touching way. A young man lately said to an older: "I lost my father in infancy, and have often felt the need of one. I have wished I had a father.—Will you be one to me?" "I will," said the other, "as truly as to my own son;" and the earnestness of his expression vouched for its sincerity.

LOOK OUT FOR BLUE SKY.

The feeling gains ground here, that the storm of war in the land, is about over. After a thunder-storm the clouds remain for a time, and the receding thunder mutters in the distance. A careless observer might not know by these signs whether the shower was coming on, or going off; but the weather-wise would look for a clearing up, and go about their business.—Peace, when it comes, will be known in the spiritual sphere, before it is known on the Potomac; and in that direction, it appears to us, there are signs of blue sky. There may be considerable friction and confusion in the adjustment of things for a time, but is not the underpinning of slavery knocked out, and with it the feeling of fight in the people?

WILLOW PLACE.

The manufacturing building which is this week commenced at the Community's water-power, a mile distant, is to be in the form of an L, the outside walls of which measure 124 and 131 feet, or a total of 255 feet in length. Materials, brick; motor, a breast wheel; hight of fall, 21 feet; area of pond (conjectured), about five acres.

HOOP TRUNDLING.

A lady, visiting the Community, got a severe fall down the main hall stairs, a short time since, in consequence of catching her foot in the hoop-skirt of her dress. We have seen a statement that several hundred deaths are annually caused in England, by accidents arising from the same article. The question should begin to be considered by women, whether a fashion involving so much danger, to say nothing of its inconvenience and deformity, is worth following.

FRUIT.

The baskets of apples, placed each morning in the main passages of our dwellings, for the solace of whoever will take them, indicate a well-keeping sufficiency of fruit. The opening season, we are told by fruiterers, is promising also an abundant crop.

WESLEY AND HIS CONVERT.

EDITOR OF THE CIRCULAR:—On the last page of your second No. (March 28), there is a story about John Wesley and a man claiming to be his convert and hailing him from the ditch. The joke is a good one, but it seems to me there must be some mistake in attaching it to John Wesley. The doctrine of the possibility of "falling from grace" was one of Wesley's strong points, and is the hobby of Methodism to this day. According to this doctrine the man in the ditch might have been, at some previous time, really converted, not only by Wesley, but by the

Lord himself, and the depth to which he had fallen might be only a signal proof of the danger of backsliding. I cannot think that Wesley would have shirked the responsibility of his work in the summary way ascribed to him, or that he would have answered the man with a sentiment that implies that the Lord has nothing to do with the conversion of persons who afterward fall into heinous sin. If he did answer any man in that way, he sacrificed his favorite theological dogma to his love of a joke.

J. H. N.

FOOT NOTES.

IV.

I see that pedestrianism is felt to be a little shabby. People do not generally dare to go on foot, for they fear the loss of social consideration. Indeed, gentility is but little more than a question as to the ways in which a man performs his gettings-about. To that old British woman, the man was "respectable because he kept a gig." The time was, when a stranger traveling on foot could not readily find entertainment among the hospitable planters of the South. This war, I think, will raise some of the chivalry to the dignity of the walkers. The disgrace of punishment is felt to be intensified when, for example, some noble prisoner is borne in a cart to his place of execution. Old Floyd Ireson "was tarred and feathered and carried in a cart." I have to confess that I often feel a very positive kindling of the imagination, when a gallant man and a fine woman with plumes and riding dress, go past on proud-stepping horses; and for an instant I partake of the common illusion that these riders are fortune's pets; I even feel some desire to enact a similar scene. I was among the chivalry when I dismounted and betook myself to walking on the dry hot sands: and I think I am as confirmed in the habits as any man should ever allow himself to be. To return again: Walking is so much practiced by a set of poor unfortunates, who give no luster to the act, that a man needs to be rich—not in the money sense—and very earnest too, before he will dare to assert his liberty to use his legs. In brief, pedestrianism is at present almost entirely surrendered to the

VAGABONDS.

I find these wrecks upon most of the principal roads hereabout. Often traveling singly, sometimes in couples, at other times in triplets—a man and two women, or one woman and two men—this social debris floats back and forth between the great cities like broken things among the eddies and whirls of an estuary. These tramps are from almost every nation; most of them, however, speak their words with a brogue. To one who can find the nerve necessary to study the picturesque aspects of degradation, these people offer much that interests. One naturally inquires if they ever had a chance in life, or whether they have missed it. For the most part they seem as if they had been overtaken and strangled by their passions; it is likely however, they never had a fair start in the race. One cannot conclude that they were expressly designed to consume the surplus of cold victuals and old clothes, which people are quite glad to bestow on them. When I see one of these men, foot-sore and weary, departing in a dissipated gait, notwithstanding the curious benevolence I may feel for him, I always hope that his cold victuals may so nourish him that he will be able to go a great way.

These strollers prove themselves good generals, for they subsist upon the country through which they go, and they carry little or no impedimenta. They are unphysiological to the last degree, eating as they do, irregularly, stupidly, and at late hours before sleeping. And for the most part they appear in low condition—too feeble even to make them fair food for the cannon. Though they are generally sober, 'tis very plain that they have not always been so. They have so little about them that is lightsome, one might suppose that laughter and hot dinners are luxuries that depart together, and that pedestrianism is a sad employment.

Vagrant walkers, I judge, have long had possession of these roads. In the year 1768—ninety-six years ago—E. Hall, of Wallingford, brought these tramps before the reading public of the *Connecticut Journal*. He writes: "As I have never burdened the public to read, or you to publish, any of my productions, I flatter myself the subsequent succinct account will be forgiven. As economy is the watchword of this reign, as candor was of the former, in the courtly and ministerial style, it has crossed the Atlantic, and is in high vogue in America as well as Westminster, the city of the great King. The story is this: A few days since, a strolling man in soldier's regimental garb, calling himself James Mc Cannon, with a blazing woman, came into my house in early morn, begged for cider, then three mugs deep, as I was informed; after some admonitions given him, my affairs pressing my immediate departure, I left him in the house, on which he soon became very boisterous, attempting to pilfer some things, which my domestic discovered; finally carried off a brass save-all, of a stand of candle-sticks (then undiscovered); what else is at present unknown. This, though trifling in its value, intrinsically, but as an ancient patrimonial legacy of high estimation, not only as a standing evidence of their prudent economy, but *ex vi termini* a memento to economy to save-all. And hereby I beg leave to give warning to all families, to beware of such strolling pilferers, if they would save all. I beg leave to ask the public, whether it would not be of public utility, to have task-masters in every town, to compel them to labor, as they are passing every day in our streets, and will be probably more and more; or some other similar salutary measure."

These waifs appear to be meekly resigned to that fate which thrusts them out and dooms them to straw and cold victuals. I never knew one of them to make the mistake of calling at any other place than the back door, or of asking for any lodging better than a barn. Once in a while one can be seen who has not yet given up his fight with the world and with his fate.

Outcasts as they are, it is interesting to note their human ways, and their conformity to the general drift of society. The men, even in small things, never lose a certain attentiveness toward their women. Then, too, these walkers always lie abed late on Sundays, just like good people. Walking is their business, and on that day they stop work. A cleanish shirt sometimes makes its appearance on this day, but quite rarely, however. They always give some attention to toilet, stopping to remove from hair and beard a portion of the chaff and bits of straw. Striking cuts of the beard and mustache are often affected, and they suggest that perhaps the man had once worn glossy hats, gay neck-ties, flaming vests, and had shone in city saloons.

Their abundant thankfulness is not always courtly, a little abject rather; but still it is valuable as showing their formal adherence at least to the sound principle which, I trust, will yet prevail, that kindness, gratitude and love, are ample equivalents for material things. One man, evidently proud of his good hand-writing, once called for pen and paper, and, to pay for his dinner, wrote a recipe for making ink. This man had learned book-binding in London, and when encouraged by boys, liked to display his knowledge. One bestows his thanks with a proud humility that says, "I have seen better days." Some make such wild expressions of appreciation for a favor, and declare such excessively generous readiness to part with all they have to succor their benefactor should he ever come to need, that one sometimes surmises that the fellows are doing a little bit of sly humor at his expense.

It is hard to stand before these sin-scarred bodies and souls, and not feel some of that interest which attaches to all things human. There is often about them some feeble reaching forth to get your recognition of their humanity, and to find in you some sort of social warmth. Here is a man who looks up with such mendicant entreaty, and from so great a depth, as from the bottom of a pit, that I think it would take fathoms of rope to bring him to daylight. But there are those who do not call for recognition; the look of their eyes smites you with such force, that you almost wish to retaliate by blows with a stick.

Notwithstanding Bulwer has given us that wonderful and loveable old vagabond, "Gentleman Waife," still the tramps are not so picturesque, nor do they justly fill so large a place in literature, as the Gipsies, or Zincalli. Now that I have reached these vagabonds, I will tell the story of my

MEETING AN EGYPTIAN.

When I was once traveling in New York, my attention was arrested by a singular tent at the side of the road. It was shaped like an oven, was made of a thick, green stuff and some additional blankets were fastened upon the arch to make it more impervious to the rain. The lining of the tent was made of a reddish figured cloth. Near by stood a covered wagon; and at the opening of the tent, seated idly upon an inverted pail near a small fire, was a swarthy, black-eyed and black haired man, with nothing uncommon about his dress except a gaudy vest. All this promised to reveal some new phases of vagabondage. My companion, Mr. Oldcastle, who has little sentimental interest in the vagrant species, advanced to the tent with something of the air of a hound that had scented unusual game, and began the dialogue.

"What are you doing there?"

"Camping." If the man had been made of wood he could not have exceeded the laconic indifference of that single word.

"What's your business?"

"I am a coppersmith, and my lady reads fortunes." The dignity of this answer was unique. People who live in houses, and never stroll, sometimes show that they are a little ashamed of their callings, but this man was above that weakness.

"Of what nation are you?"

"I am an Egyptian," said the stroller, almost with solemnity. I knew the Gipsies called themselves by that name, and my curiosity was expectant.

"Oh," said I, "you are a Rommany Chal, eh?"

"Do you speak Rommany?"

My question had penetrated the man with respect, and he flashed out into sight in a smile and was ready for trade in words. I was fresh from the reading of Borrow's "Lavengro," and "Rommany Rye," and was glad of an opportunity to test the truth of his disclosures respecting the Gipsy or Rommany language. The stroller was an English Gipsy, and spoke our tongue with remarkable precision and purity of accent. His definitions of the words I gave him were generally the same as those given by Borrow. Still the spiritual atmosphere of the man made me feel as if I were dealing with a thorough liar. I left the nomad with a flavor of wildness in my mouth, that for an instant made our tame respectability which sleeps in houses, insipid enough.

Q.

POLITENESS.

It seems to be generally thought, or tacitly conceded, that politeness is mostly independent of interior cultivation and refinement—that it is primarily an objective acquirement, to be gained by attention to rules of external etiquette, and by intercourse with what is called good society. Though these external means of accomplishment have their place, and are not to be despised or underrated; yet whoever places his chief dependence on these for the attainment of good manners, is overlooking the most important consideration, which is subjective, pertaining to the heart and spirit. The popular rules of etiquette—polite deportment—are mere "mint and cummin," compared with the weightier matter of having a good heart, from which selfishness and pleasure-seeking have been excluded.

True politeness must have its fountain in the inward part—the spirit—otherwise it will be superficial and affected, and will not cover the various requirements and emergencies of life. Selfishness and pleasure-seeking are gross qualities, and no amount of mere external polish and refinement will hide them. They are sure in one way or another to manifest their presence, and betray their possessor into coarse actions and bad manners.

The ultimate standard of politeness, the standard to which all will aspire who seek admittance to the best society—the society of angels and "just men made perfect"—will embody the New Testament injunction, "Love thy neighbor as thyself." On this basis, all the external polish and refinement that may be superadded will be legitimate and congruous.

W. H. W.

HIGHLAND CORRESPONDENCE.

[We received the following letter a few days since by private post, and as it contains matter of public importance have concluded to lay it before our readers. We shall be glad to hear further from the writer, and his observations of the secret conclave. We are inclined to think that Communism bids fair to be the most dangerous enemy they have yet encountered, and will be hard to kill:]

Beverly Lodge, Highlands of Conn., April 26, 1864.

To the Editor of the Circular—

Dear Sir: I hasten to communicate to you the details of an adventure which has transpired within the past twenty-four hours.

You have known me so long and so well, that had I not a lurking suspicion that what I write to you thus privately may possibly be "confiscated" for the benefit of your readers, I would not preface my communication in the following style, to wit: I am not naturally imaginative, nor given to superstitious notions. In all my previous life I only once really fancied I saw a sprite, and then I did not scream or run, but boldly met its gaze, and endeavored to take hold of it. To be sure, after it vanished a slight tremor came over me; but there was nothing in the occurrence which overturned my philosophy on the subject of ghosts, which may be briefly stated thus: The man who is earnestly endeavoring to serve God has nothing to fear from angels and pure spirits on the one hand, or demons and hobgoblins on the other. The former class will certainly only minister to his heavenward progress; and in the name of Christ he has a perfect protection from the sorceries and incantations of the other class. But those who do not strive to please and obey God have much to fear from both classes of spirits.

Now read my story. Yesterday afternoon there came upon me one of those moods which every one has, no doubt, occasionally experienced, which induced me to take to a long, solitary, reflective walk. I seized my hat and cane, and sallied forth, not caring whither my steps carried me. On, on, on I went, over hill and meadow, through vale and swamp and forest. The sky grew dark, and Prudence, Good Sense, and such well-disposed counsellors, advised me to return. Still I walked on, happy in my own reflections, and feeling independent of external circumstances. If one wishes to enjoy and digest his reflections, let him absent himself from home, friends, labor, and the million incidents of our ordinary circumstances, and start off alone on a tangent, and forget all that he has left behind: one hour of the reflection he may thus obtain may be worth to him more than a week's thoughts originated amid the common routine of life. I will not now ask you to read my reflections on this occasion, but proceed with my narrative.

Some twelve miles had I thus measured before I felt weary or seriously thought of returning to my home. Scarcely had I commenced retracing my steps before the storm, which had so long been preparing, burst forth. The wind swept by, and the rain descended in large drops, as if to admonish me of the torrents waiting above. I remembered an old brown two-story house, with chimney half blown down, and windows well riddled, which I had passed, and which could not be more than half a mile distant. I ran for that shelter, and reached it only in time to avoid a thorough drenching.

This house, as I have since learned, is eighty-seven years old, and has its note-worthy history. Many years ago it was the scene of a horrible crime, since which time it has been known as "*The haunted house.*" I was not however aware of this fact, when I sought its shelter, although a cursory inspection of its interior suggested to the mind, that if the demons and old fogies of the invisible spheres had business in these lower regions, and desired a trysting place hereabouts, they would be unable to find one better adapted to their purposes than this old house—three-fourths of a mile distant from any other dwelling, and shut in by hill and woods on three sides. But my mind is not prone to dwell on such conceptions; and as it was evident that unless I chose to face a furious storm, I had best make myself comfortable here for the present, and perhaps for the night; and as darkness was fast approaching, I improved the little of day-light left in selecting my corner, and rendering it as habitable as might be, considering the means at hand. Then carelessly stretching my weary limbs on the bare boards of the apartment, I said—Come storm or calm, thunder or lightning, or howling blast, it's all the same to me, so long as I am thus safely protected. I was soon asleep, and unconscious of what was passing within or without. How long I thus remained I cannot state. I was awakened by the sound of voices immediately beneath me. I had chosen from the labyrinth of rooms which the old house contained, a small closet or bedroom in the southeast corner of the second story, over the largest room in the house, which was probably in days of yore used as the kitchen and dining-room of a large family. At the sound of noises, my hair was inclined to stand up, but, as it happened, I had sufficient discretion not to signify in any way to those below that there was a wayfarer immediately over their heads. Impressed with the thought that conversation in such a place, at such a time, boded evil rather than good, and that possibly great mischief might be brewing below, I resolved to make the most of my circumstances, and learn all I could of my strange companions and their projects. My senses seemed to have been rendered doubly acute, and the thin floor which separated us appeared to scarcely obstruct the sound of their voices. Through a small crack in said floor I was able to distinguish several members of the company in the torch-lighted apartment beneath. It was a motley group: a few were young and robust, but most were old and haggard; some were exceedingly hoary and antiquated in appearance, some were of fascinating mien; others stern and forbidding; others bloated and disfigured: most of them were rather shabbily dressed, and ill at ease, as though they had seen better times, and were dissatisfied with their present circumstances and prospects. The majority of the company, however, were not so peculiar or extraordinary in their appearance as one might suppose, judging from their character. You and I have often seen persons bearing close resemblances to them

I gathered from the conversation that the time for them to commence their deliberations had arrived, and that they were only awaiting the arrival of a single personage; who soon entered, and was received with a deferential air by the company present. This character was addressed as Oppression. He inquired if all were now present who were expected. "All," was the response. Then taking the chair, he called the assembly to order, and straightway proceeded to utter himself as follows:

"Friends and Satellites: I have invited you to assemble here on this occasion, not to revel in lust and pleasure; not to recount our victories; not to exult over the folly and mismanagement of our enemies; not to glorify our cause, worthy as it may be; not to boast of individual prowess; nor in any respect to glorify ourselves, for much time has already been spent in that manner. I summon you to the consideration of subjects of great importance, and which demand your immediate attention. [Hear! Hear!] I solemnly assure you of my conviction that we are individually and collectively in great danger of losing our influence over men. With regret I declare that many of us no longer wield the power that we did of old; and with greater regret I declare that many of us are so stupid and sleepy as to remain unconscious of the facts which are every day transpiring. [Hear! Hear!] We have flattered ourselves with the thought that Error, Sin and Misery are omnipresent and all-powerful, and will ever be; that our deadly foes, Truth, Enterprise, Intelligence, Love and Religion, are sleepy characters, whose influences are easily thwarted. Friends, ye err greatly. While you have been drowsily enjoying yourselves, or lazily pursuing your projects, these foes to all we hold dear have been secretly, yea openly, undermining your power. [True, true.] Rouse, rouse! Prepare for the emergency—be equal to the occasion. My welfare is inseparable from that of yours, and therefore I shall speak out boldly. [Go on! Go on!] Look straight at the facts. In at least one-half of the world, Ignorance is no longer openly respected. In this country not a day passes away without weakening his influence. Schools, academies, colleges, newspapers, railroads, steamboats, telegraphs, are constantly undermining his power. *Universal intelligence* is now the watchword from one end of the land to the other. It is fast becoming a virtue in the public estimation to teach even niggers to read. And yet, my friend here groans over this sad result, but does not put forth appropriate efforts to avert the evil, or even stop its further progress. [Oh! oh!] How is it with Superstition? His power is also shattered, and his forces are being driven as by a whirlwind. Men are learning not to reverence the supernatural, because it is so. They are beginning to inquire into the essential character of whatever claims reverence. This is all wrong, and promises great detriment to our cause; and you, friend Atheism, are somewhat responsible for this state of things. You have not been wise enough to properly limit your labors. You have been too jealous of the success of Superstition, and have sought to foil him. Both of you are laboring, or should labor, for the same ultimate object—the success of evil, and the downfall of good. It makes no difference whether a man believes in a false God or believes there is no God: the point is to keep him from adoring that God who is the enemy of us all, and who rejoices in our every failure. Let every one keep this view in mind, and act accordingly.

"And so I might go on, and show how, with few exceptions, each and all of you are less powerful to-day than you were even fifty years ago. Avarice and Lust are noteworthy exceptions: their power is perhaps greater to-day and more all-controlling and all-pervading than at any previous period; but let them not rest secure: even now the enemy may be preparing to sap the foundations of their influence. Our interests, I repeat, are one; and if some of us fail, we shall all sooner or later fail. For myself, I frankly confess that, in consequence of the inefficiency of your aid, my enemies have been too strong for me. [Great excitement.] I can remember when my reign was almost undisputed. I oppressed the strong and the weak, youth and age, the mind and the spirit. My fetters were upon nearly every soul and upon nearly every body. No one dared question my power, or lightly venture to assert his liberty. In my prosperity you all prospered—Ignorance, Superstition, Lust, Avarice, Intemperance, Legality, Enmity, Stupidity, Disease, and all others who served our common cause.

"I am monopolizing your time and attention [cries of No! No! Go on!]; but I wish further to say, that I for one will not supinely watch the waning of my power and influence. I will not drowse while the enemies' bullets are piercing our dearest friends. No! I am for action—for combat—till the enemies' victorious legions are hurled back, and every one here present is fully reinstated in his former glory and magnificence. [This remark created the greatest enthusiasm, and every one present came forward, and with horrible execrations avowed his purpose to follow their brave leader, and obey his behests. He continued.] This glorious result may be achieved; but in the mean time, let us learn wisdom from the past, and not repeat our follies. When any new movement arises, let us destroy it at once, and not think it unworthy of our attention—'kill it in the bud.' Our short-sighted folly in this respect has been the greatest cause of our misfortunes. Moses should have been strangled as were other Jewish infants; Christ should never have been permitted to leave the manger; Martin Luther should have been dispatched before he threw his inkstand at our sovereign; the Puritans should have been shipwrecked; revivals should always be crushed at the outset, and rebellions let alone, or made to serve our purposes better than the present one is likely to do. I venture to say, that a great number of new projects are already in progress which bode mischief to us, but which are let alone because we are too stupid to discover them, or think them yet unworthy of our serious attention. Beware of such careless security. Let us hold regular meetings, and plot together for the advancement of our interests. Our enemies are not so foolish as we once thought. We may learn of them. They are continually plotting together for the furtherance

of Right and the destruction of Evil. Their conventions are openly held. Let us keep up our secret meetings.

"In conclusion, I would call your attention to one subject, in regard to which let every person here present gather all the facts possible before our next meeting—when I propose that the subject be thoroughly discussed—namely, *Communism*. I verily believe this is one of the things which it is our duty to 'nip in the bud,' and not allow to become a well-rooted tree."

This last proposition was unanimously approved, and as the dawn was near at hand, the assemblage dispersed, agreeing to meet in the same place at half-past twelve on the following Monday night. As for myself, I soon left my shelter, and with rapid pace sought the nearest public conveyance to my residence. I have hastened to communicate the matter to you, knowing the interest you take in progress and the public good. I shall watch the movements of this secret club, and if possible be a spectator of their next meeting.

Yours truly, GOFFE.

A CHAPTER OF ELECTRICAL WONDERS.

AS REVEALED BY ANDREW CROSSE.

We extract from the *British Quarterly*, the following account of Andrew Crosse's experiments and discoveries, respecting the electrical mysteries of the thunder-clouds and mists:

In visiting his seat at Broomfield, the splendid apparatus he employed for extracting electricity from the atmosphere would first arrest the attention. Fancy the electric telegraph of our railways stretching across a forest, with its posts mounted on the tops of the highest trees, and the reader will be enabled to form some idea of the scene in Mr. Crosse's park. Far overhead ran wires supported by poles which rose from the summits of the trees, and were provided with an insulating arrangement to prevent the dispersion of the fluid. The duty of these wires was to fetch in the electricity from the clouds and the fogs, so that it might be examined at ease by the owner of the mansion. Within the building there was a large room with an arched roof, originally intended for a music hall, but now occupied by voltaic batteries, galvanic piles, electrical jars, and other implements of philosophy. It was a place where strange processes were in progress, and where subtle streams of fluid, flowing in silent but ceaseless currents, were busily employed in piling up little mineral fabrics, and compelling the obedient atoms to fashion themselves into exquisite forms of crystal architecture. But it was a place also where the same element might be seen in its pride, and where it might also be heard in its wrath; for all those wires could be made to pour their supplies into a large brass conductor, fixed and insulated on a table in the organ gallery, and fittingly inscribed with the words, *Noli me tangere*. Not far from this conductor was another brass ball forming the extremity of a metallic arrangement by which the electricity might be conveyed out of the building into the moist ground around. There was a contrivance too by which the current, when its strength became perilously great, or when its services were not required, might be turned off altogether, and discharged into the soil without entering the apartment. But if the magician wished to observe the play of the fiery element, it was easy to increase or diminish the distance between the two brass knobs, and thus to regulate the charge to be received by the huge battery employed. Then, if there were any electricity astir in the atmosphere, those balls would be sure to reveal the fact, and a succession of sparks and explosions, augmenting in rapidity as the commotion increased, would enable the observer to see into the storm as it were, and to listen to its doings related in its own voice.

The results were surprising. With this noble searching apparatus Mr. Crosse succeeded in obtaining an insight into the composition of thunder-clouds such as no one else had done before him. Imagine a dense mass of vapor approaching the electrical observatory on a sultry summer's day. No sooner does its margin arrive overhead the exploring wire, than the brass balls begin to announce the commencement of the fray. A spark is seen, a detonation heard, and these heralds of the tempest are followed by a series of mimic flashes and explosions somewhat slowly delivered, for they may not perhaps exceed nine or ten during the first minute of the convulsion. Then there is a pause, but after a while the apparatus gives forth another set of sparks and snappings, equal in number, equal also in force to those which have just been exhibited, but differing in this particular—that if the first consisted of negative electricity, the second will consist of the contrary description. Another pause takes place; and then the sparks begin to leap from ball to ball, but with greater vigor and rapidity than before; these are discharges of negative electricity as at the outset, and, when they have passed, a similar set of positive eruptions invariably ensues. Again the apparatus becomes silent, but it is only for a short interval: a more numerous and brilliant succession of flashes soon announces that another zone of negative vapor is sweeping aloft, to be followed after a brief respite by a corresponding zone of positive electricity. The intervals of repose now grow shorter, and at length a stream of fire is seen to pour from one conductor to the other, broken only by the change from one kind of fluid to its opposite. When the center of the cloud has reached the spot, and the exploring wires are sucking the lightnings from its heart, the effect is inconceivably fine. With the thunder roaring around the building, the windows rattling in their frames, the rain dashing against the panes, the electric fire bounding madly from ball to ball, and bursting incessantly as if enraged at the presumptuous mortal who had dared to drag it from its native sky, his must be a stout heart who could witness such a scene without some feeling of awe or even of alarm.—For there is death in every discharge, if those conductors were rashly approached, and thousands of Richmans might perish in the emptying of a single cloud. But as the excited vapors roll on, the explosions begin to slacken in number, and a series of twin eruptions, alternating with periods of repose, shows that the latter half of the cloud corresponds in its electrical arrangements with the former. Finally, the languid spark and lazy snap announce that the hurly-burly is nearly done, or that the storm is traveling with the remnant of its wrath to some neighboring locality.

Thus were thunder-clouds dissected. Mr. Crosse was the first who traced and defined the skeletons of these aërial rovers. To him they were no longer like whales, or weasels, or camels, or any thing a Polonius might imagine; but they were masses, having a settled electrical structure, complex indeed, but as regular and harmonious as the belts of the rainbow. Formerly it was supposed that an excited cloud consisted of vapor similarly and equally charged throughout its mass. But now it appeared that there was an electrical nucleus impregnated with one species of fluid, round which ran zones of vapor arranged in pairs, each pair exhibiting positive and negative action in turn, and alternating with what seemed to be rings of repose. Further, it was manifest that the strength of the cloud lay in its center, for the fury of the discharges gradually increased as it approached, and diminished as it receded. This circumstance was not at all in keeping with what was known respecting the dispersion of the fluid on insulating plates or globes made of a conducting material. There, the electricity is most abundant at the rim or superficies of the body: indeed, in a solid sphere it disposes itself as a thin shell or atmosphere on the exterior, leaving the inner parts perfectly unexcited. But here, in the cloud, the conditions seem to be reversed, and the fluid augments in power from the circumference to the center.

How explain this unexpected fact? Mr. Crosse made it the topic of frequent consideration. None of the solutions he could devise seemed to afford him much satisfaction until one day, whilst shaving, the puzzled philosopher cried out, *Eureka!* and darted into his electrical hall with the lather still ornamenting his chin. He proceeded to try some experiments—for theory was nothing with him until embalmed in facts—and speedily convinced himself that his surmises were correct.

The shaving discovery was this. A cloud is not a solid conducting mass, but a congregation of vesicles separated from each other by little intervals. The watery globules, if closely packed together, would convey the electricity from one part to another with the greatest facility, but being estranged by the action of caloric, the fluid can only be propagated to a small distance by direct communication. Induction, however, commences where transmission ceases. Hence, if we suppose electricity to be developed in any particular spot in such a medium, it will spread itself circularly as far as its energy will enable it to push through the interspaces between the surrounding vesicles. Then it will begin to act inductively through the air, calling up the opposite kind of fluid in a ring or zone of watery particles, which ring or zone will be concentric with the excited nucleus. This, in its turn, necessitates the formation of another belt charged with the contrary species of electricity, and thus the whole cloud is mapped out into a series of electrical rings, arranged in pairs, with barren intervals, and a central mass, which is the metropolis of the storm. If the distribution of the fluids could be rendered visible, and their presence denoted by different colors vying with those of the rainbow in brilliancy—the interspaces being left in their natural condition—what an impressive spectacle such a cloud would present as it rose above the horizon, mounted to the zenith, and then spread its huge folds over the heavens, like some monster serpent—say the old Serpent of Sin let loose from his invisibility, and coming in horrible magnificence to crush the world in his embrace. In the absence, however, of these pictorial aids, some of Professor Faraday's experiments afford a species of illustration which may assist the reader's conception of the case. If a number of small pails or vessels are arranged within each other—all being insulated by the interposition of sheets of shell-lac or some other non-conducting substance—and if a ball charged with electricity be suspended within the innermost vessel, its inductive effects upon the whole set will express in some degree the action of the storm-nucleus upon the remainder of the vaporous mass.

Nor is the interest of such a many-zoned cloud* at all lessened by the fact that it produces a corresponding disturbance and a corresponding distribution of the electricity in the earth beneath. Point for point, ring for ring, and nucleus for nucleus, it calls up an answering tide of fluid in the ground by virtue of its inductive powers, the only difference being that the positive parts of the vapor above are represented by negative below, and *vice versa*. Thus, whilst a storm is raging, we are helplessly stationed between two excited masses, and if we were relatively as light as the paper figures or pith balls which frolicsome young electricians delight to see dancing between two metallic plates, we might almost expect to be turned into movable conductors, and kept mounting and descending until the troubled equilibrium was restored. Thus, too, whilst the storm-cloud courses through the atmosphere, its electrical rival is traveling along the surface with equal rapidity, as if it were but the shadow of the tempest above; and now and then the vivid flashes, darting from one nucleus to the other, or from one zone in the sky to another in the earth, seem like the shots which armies moving by parallel paths sometimes exchange in their wrath or in their wantonness.

It does not, however, require a professed

* It is scarcely necessary to remark that in speaking of this adjustment into zones, it is not the Vapor, but the electricity that is meant.

thunder-storm to produce stupendous electrical displays. Mr. Crosse's apparatus enabled him to read the secrets of a November mist, and those who have frequently pushed their way through these cold, raw, dreary phenomena will be surprised to learn how often they may have been sheeted in fire, and how calmly they have passed through a furnace more deadly than Nebuchadnezzar's, but without a hair of their head being singed in the flames. One day, during that dismal month which Hood celebrates in a series of No-es, the philosopher was seated in his hall of thunderbolts whilst a thick driving fog was darkening the air. For some time no symptoms of excitement were manifested by the exploring machine; the insulators were dripping with wet, and consequently carried off all the electricity the wires received. But suddenly a smart detonation was heard between the two balls; others shortly followed, and then the explosions succeeded each other so swiftly that the ear could detect nothing but a continuous crash. This was interrupted by the transition to the opposite kind of electricity, after which a similar torrent of fluid was poured from one conductor to the other. So vivid was the rush of fire that the eye could not bear to survey it for any length of time. To have touched one of those balls whilst the liquid lightning was gushing forth with such fury, would have been instant death. For upwards of five hours this splendid but appalling spectacle continued without any intermission except when the positive fluid was exchanged for the negative. "Had it not been for my exploring wire," says Mr. Crosse, "I should not have had the slightest idea of such an electrical accumulation in the atmosphere . . . the stream of fluid far exceeded anything I ever witnessed, except during a thunder storm. Had the insulators been dry, what would have been the effect? In every acre of fog there was enough of accumulated electricity to have destroyed every animal within that acre." Who could have supposed that a simple mist contained such potent lightnings ready to be issued whenever the word of command was given, and yet so masked and sheathed that but for the tell-tale apparatus you would as soon have imagined the gentle dews to be saturated with fire?

NEWS ITEMS.

THE ARCHDUKE Maximilian has formally accepted the title of Emperor of Mexico.

THE DANISH war still continues, with no decisive results either way thus far.

PHOTOGRAPHS, it is said, are now taken very successfully by the aid of a new magnesium light. Fifteen grains in the form of a small wire will burn a minute, and not cost more than a few cents. At a distance of eight feet from the sitter the light produces a negative equal to any obtained from sunlight under the most favorable circumstances.

THE UNION forces have suffered several reverses lately, one at Plymouth, N. C., where the Rebels captured a garrison of about 1,600 Union troops; and another in Louisiana, where Gen. Banks has had a severe engagement with a force of Rebels under Kirby Smith.

MR. BESSMER, the inventor of the process of converting iron into steel very quickly, now says he can produce a block of it, twenty tuns in weight, from flint cast iron, in twenty minutes.

VULCANIZED india-rubber shirt-collars have recently been patented.

THE net receipts of the Sanitary Fair in New York city, were over $1,000,000.

NEARLY four millions of dollars were expended in New York State upon the education of children in the public schools last year.

THE oil wells of Pennsylvania have produced 554,000 barrels of petroleum since February, 1862.

CALCUTTA is to be no more the British seat of government in India. The viceroy and council were to leave for Simla, in April, though the more central city of Jubbulpore or Kirkee will probably be chosen as the future capital.

THE Niagara Falls *Gazette* has the following account of an extraordinary ice jam in the Niagara river a few days since, and the narrow escape of several persons:

"A change from the prevailing easterly wind to the opposite quarter brought down immense quantities of ice from the lake last Wednesday night. For the first time, we believe, in the recollection of the 'oldest inhabitant,' the ice formed a complete dam across the rapids between the bridge and the upper end of Goat Island. With the exception of a few rods in width near the main shore, the rocks below the ice dam were bare. It was safe walking where usually flows an impetuous flood. And yet it was not quite so safe, as was proved Thursday morning, when several young men wandered over the barren rocks, and visited a boat that had been lodged there for several weeks. While enjoying a walk, which we of this generation may never again hear of, the ice dam gave way and the vast volume of water, probably from five to ten feet deep, came rushing through. The dam soon disappeared, and the boat that had remained fixed against the ordinary torrent was swept away and over the cataract. Of course there was a hurrying toward the island shore and the paper-mill pier. Some escaped with a little wetting, while others barely escaped with their lives. A young man named Barlow was obliged to leap from one to another of the floating cakes of ice, and fully appreciating the necessity of making land before being carried too near the cataract, lost no time in leaping from the last cake, and swimming several rods to shore."

ANOTHER NEW TYPE-SETTING MACHINE.

A contributor to the *Atlantic Monthly* gives the following description of a new type-setting machine invented by Mr. Chas. W. Felt, of Salem, Mass:

"The merits of Mr. Felt's machine are manifold. It is comparatively simple in construction, it is strongly made and durable, it cannot easily get out of order, and it does its work thoroughly. All that is required of the operator is to read the copy and touch the keys. The processes proceed, then, as of their own accord. But the supreme excellence of the machine is that *it justifies the matter which it sets*. The possibility of doing this by machinery has always been doubted, if not entirely disbelieved, from an erroneous idea that the process must be directed by immediate intelligence. Mr. Felt's invention demonstrates that this operation is clearly within the scope of machinery; that there is no need of a machine with brains, for setting or justifying type; that such a machine need not be able to think, read, or spell; but that, guided in its processes by an intelligent mind, a machine can perform operations which, as in this case, are purely mechanical, much more rapidly and cheaply than they can be performed by hand.

"I cannot pretend to convey a technically accurate idea of this elaborate, though compact piece of machinery; but such a sketch as I can give—from memory of a pleasant hour spent in looking at it—shall be here given as briefly as possible.

"The machine stands in a substantial iron framework, five feet by four, within which the mechanism is nicely disposed, so that there may be ample room for the four operations of setting, justifying, leading, and distributing. In front is a key-board of forty keys, which correspond to two hundred and fifty-six characters, arranged in eight cases. A single case consists of thirty-two flat brass tubes, standing perpendicularly, side by side, each one being filled with a certain denomination of type. Seven of the keys determine from which case the desired letter shall be taken. Thus, the small letter *a* is set by touching the *a* key; the capital A by touching the "capital key" in connection with the *a* key; the capital B by touching the "capital key" in connection with the *b* key; and so on with every letter. There are also keys called the "small capital," the "Italic," and the "Italic capital"; so that the machine contains all the characters known to the compositor.—The operation of these "capital" and "small-capital keys" is similar to that of an organ-stop in modifying the effect of other keys.

"When the machine is in motion—and I should here mention that it is worked by steam—a curious piece of mechanism, called 'the stick'—which is about as large as a man's hand, and quite as adroit—plays to and fro beneath the cases, and acts obediently to the operator's touch. The spectacle of this little metallic intelligence is amusing. It is armed with pincers, which it uses much as the elephant does his trunk, though with infinite celerity. Every time a key is touched, these pincers seize a type from one of the tubes, turn downward, and, as it were, put it into the mouth of the stick. And so voracious is the appetite of this little creature, that in a few seconds its stomach is full—in other words, the line is set. A tiny bell gives warning of this fact, and the operator finishes the word or syllable. He then touches the justifying-key, and the spacer seizes the line and draws it into another part of the machine, to be justified, while the empty stick resumes its feeding. No time is lost; for, while the stick is setting a second line, the 'spacer' is justifying the first; so that, in a few moments after starting, the processes are going forward simultaneously. That of justifying is, perhaps, the most ingenious. It is accomplished in this wise. The stick never sets a full line, but leaves room for spaces, and with the last letter of each word inserts a piece of steel, to separate the words. When the line has been drawn into the spacer, the pieces of steel, which are furnished with nicked heads for the purpose, are withdrawn, and ordinary spaces are substituted. All this requires no attention whatever from the operator. The matter, thus set and justified, is now leaded by the machine, and deposited upon a galley ready for the press.

In this machine, distribution is the reverse of composition, and is effected by simply reversing the motion of the shaft. By duplicating certain parts of the machine, both operations are performed at the same time. The process of distributing, and also that of resetting the same matter, may be made automatic by means of the Register. This device, although an original invention with Mr. Felt, is an application of the principle of the Jacquard loom. It consists of a narrow strip of card or paper, in which holes are punched as the types are taken, forming a substitute for the troublesome nicking of the type, which has heretofore been thought indispensable to automatic distribution. By this means the type can be changed in resetting, if desired, so that different editions of the same work can be printed in different sizes of type.

"The machine is adapted to the use of combination types as well as single letters. For this purpose Mr. Felt has developed a new system, based upon an elaborate analysis of the language. In a number of examples of printed matter, embracing a wide range of literature, the frequency of the single and combined letters has been ascertained by a careful and accurate computation, and reduced to a percentage. It may interest the reader to know that *e* is the letter of most frequent occurrence, constituting one-eighth of the language. *The*, as a word or syllable, is found to be six per cent.; *and*, four per cent.; *in*, three per cent., etc.

"I have not pretended in this description of Mr. Felt's machine, to explain every technicality, or to raise and answer possible objections. The great point is, that the labor of setting, justifying, leading, and distributing types by machinery is actually done, by means of his invention. Thus the aspiration of inventive genius, in this department of art, is nobly fulfilled."

K—— is a preacher who was educated in the popular and sensational style of speaking. He affects a great amount of *impressement*, as the French say, but he is not very precise in the choice of his words. Nevertheless his friends consider him quite eloquent. He was once in a company that had just visited one of the highest peaks of the Green Mountains, and he was describing one of the gorges to another of the party. He was laboring to convey an impression of its sublimity; finally, after a hard struggle, and with much unction he burst out with, "*You never saw such a vast projecting hole!*"